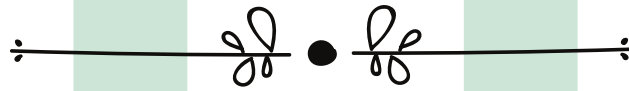


BIOHACK NOTES



RESPIRATION IN PLANTS

- BASED ON ACTIVE RECALL AND SPACED REPETITION
- TARGET 360/360 IN NEET BIOLOGY & 100/100 IN BOARDS!



PARTH GOYAL





• GLYCOLYSIS & FERMENTATION

- 1) The breakdown of glucose to pyruvic acid is called _____
- 2) Glycolysis was given by _____, _____, _____
- 3) First step of glycolysis is catalysed by the enzyme ?
- 4) Net ATP and NADPH produced in glycolysis per 4 glucose molecule are _____
- 5) Write all the reactions of glycolysis and all the enzymes involved with cofactors & energy equivalents.
- 6) What are the three fates of pyruvic acid produced ?
- 7) Yeast converts pyruvic acid to _____ and _____
- 8) Write the 2 reactions and also the enzymes involved in this reactions.
- 9) Pyruvic acid is reduced to lactic acid by enzyme _____
- 10) In both lactic acid and alcohol fermentation, less than ____ % of the total energy is released.
- 11) Yeast poison themselves to death at ____ % of alcohol.



• AEROBIC RESPIRATION, TCA & ETS

- 12) In which reaction pyruvate dehydrogenase is used and where is it found ?
- 13) Write the linking reaction between glycolysis and Krebs' cycle.
- 14) TCA cycle starts with the condensation of _____ with _____ and water to yield _____
- 15) First step of TCA is catalysed by?
- 16) Describe the two steps in which decarboxylation occurs.
- 17) In which reaction of Krebs' cycle, GTP is synthesised? (NEET)
- 18) Draw the whole Krebs' cycle with enzymes, coenzymes and energy equivalents produced.
- 19) _____ is the first member of the Krebs' cycle.
- 20) Krebs' cycle can be summarized as 1 reaction as –
- 21) What is the role of NADH in cellular respiration? (NEET)
- 22) ETS have _____ number of complexes. Name them.
- 23) Electron from Complex I are passed to _____
- 24) Reduced ubiquinone is called _____
- 25) Complex 4 contains (4)
- 26) Cyt c is attached to the inner surface of outer mitochondrial membrane. T/F
- 27) Cyt c act as a mobile carrier for transport of electrons between _____ and _____
- 28) Write the whole ETC with each and every element as given in the NCERT diagram.





• OXIDATIVE PHOSPHORYLATION & RESPIRATORY QUOTIENT

- 29) 5 molecules of NADH give _____ ATP.
- 30) _____ molecules of FADH_2 give 8 ATP.
- 31) For each ATP, ___ H^+ passes through the ATP synthase.
- 32) NADH pumps ___ H^+ into intermembrane space.
- 33) _____ acts as a final e^- acceptor.
- 34) In aerobic respiration, 1 molecule of glucose produces _____ ATP.
- 35) NADH oxidation is slow in fermentation. T/F
- 36) Fats and carbohydrate metabolism are interlinked by?
- 37) Which biomolecule is common in breakdown of fats, carbohydrate and protein? (NEET)
- 38) Define RQ.
- 39) RQ of carbohydrate is _____
- 40) RQ of fats is _____
- 41) RQ of tripalmitin is _____
- 42) RQ of protein is about _____
- 43) In germinating seeds, fermentation occurs. T/F
- 44) ATP synthase is also called _____



RESPIRATION IN PLANTS



PARTH GOYAL



ANSWERS

• GLYCOLYSIS & FERMENTATION

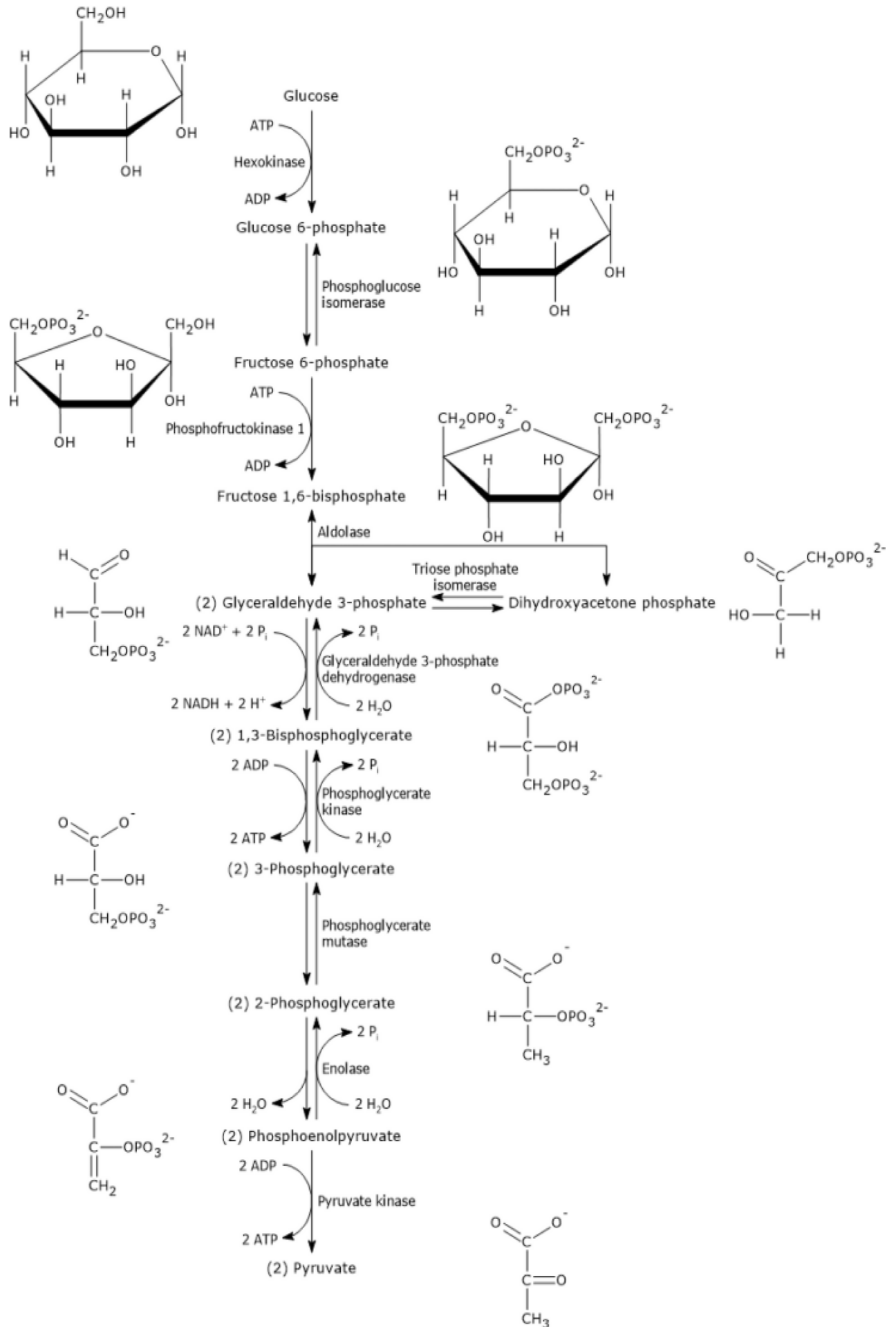
1) Glycolysis

2) Gustav Embden, Otto Meyerhof, and J. Parnas

3) Hexokinase

4) 8 ATP, 0 NADPH

5) Glycolysis

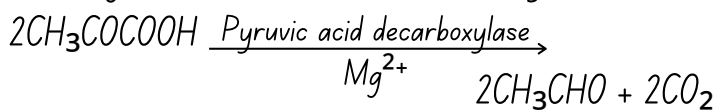


6) Alcoholic fermentation, lactic acid fermentation and aerobic respiration

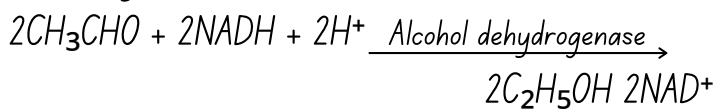
7) CO_2 and ethanol

8) Pyruvic acid formed at the end of glycolysis is converted to alcohol by using two enzymes, pyruvic acid decarboxylase and alcohol dehydrogenase.

• In the first step, pyruvic acid is decarboxylated resulting in the formation of acetaldehyde and CO_2 .



• In the second step, acetaldehyde is reduced to alcohol by $2\text{NADH} + \text{H}^+$.



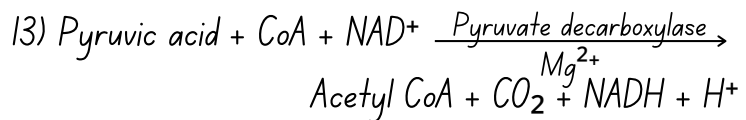
9) Lactate dehydrogenase

10) 7

11) 13

• AEROBIC RESPIRATION, TCA, ETS

12) It is used for converting Pyruvic acid to acetyl CoA, it is found in mitochondria



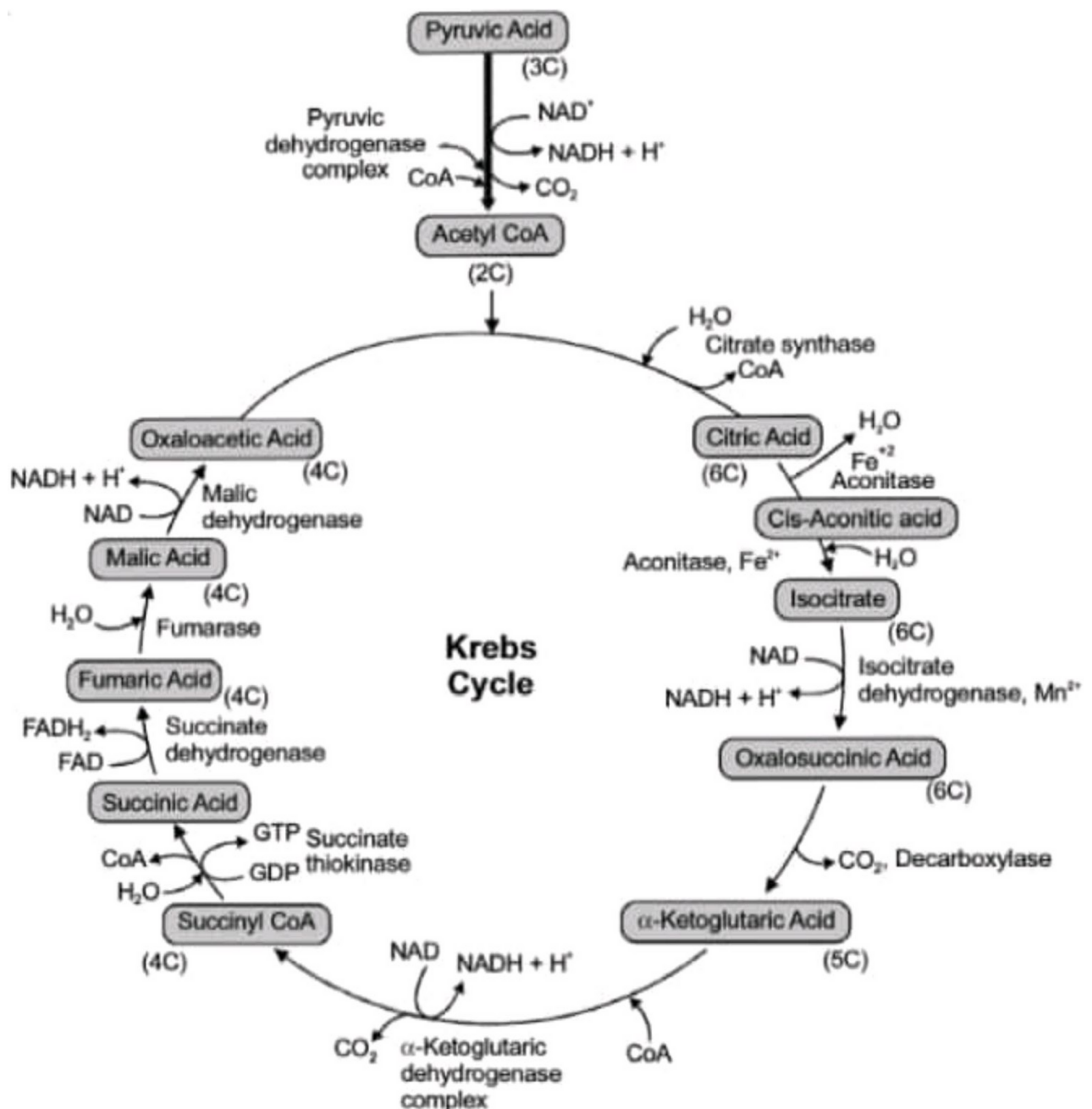
14) Acetyl CoA, OAA, Citric acid

15) Citrate synthase

16) Oxalosuccinic acid to alpha-ketoglutarate, alpha-ketoglutarate to succinyl CoA

17) Succinate to fumarate

18) Krebs' cycle



Mnemonics to remember Krebs' cycle -

I. CCIO - alpha keto vala bichara hai isliye aise hi yaad kar lo - Saas Sasur Father

Mother - Oxalo

2. Oh Citric acid Is Ofcourse A Silly Stupid Funny Molecules.

You can choose according to which suits you best.

19) OAA

20) Pyruvic acid + 4NAD^+ + FAD^+ $2\text{H}_2\text{O}$ + ADP + P_i
Mitochondrial Matrix \rightarrow 3CO_2 + 4NADH + 4H^+
+ FADH_2 + ATP

21) It act as a electron carrier

• OXIDATIVE PHOSPHORYLATION & RESPIRATORY QUOTIENT

29) 15

30) 4

31) 2

32) 6

33) Oxygen

34) 38

35) T

36) DHAP or PGAL

37) Acetyl CoA

38) Volume of CO_2 evolved/Volume of O_2 consumed

39) 1

40) Less than 1

41) 0.7

42) 0.9

43) T

44) Oxysome

22) 4, Names are -

I. NADH ubiquinone oxidoreductase

II. succinate dehydrogenase or succinate-CoQ reductase

III. cytochrome bcl complex or CoQH_2 -cytochrome c reductase

IV. cytochrome c oxidase

23) Ubiquinone

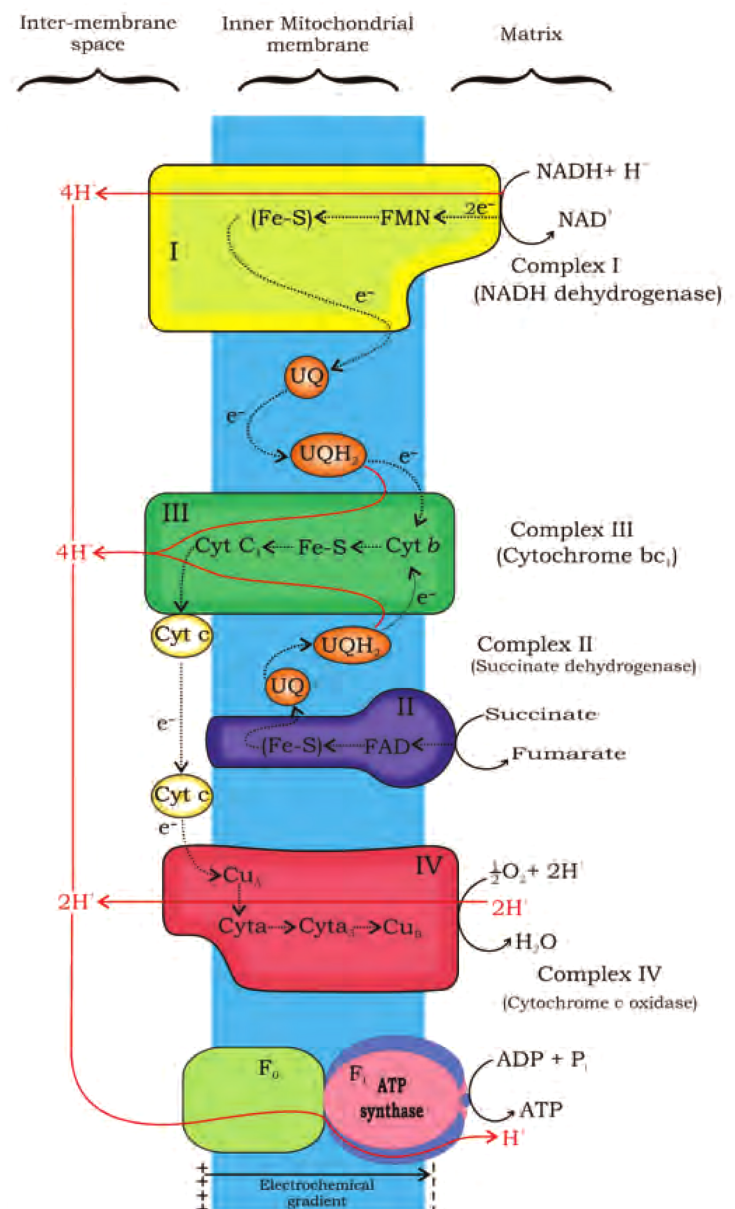
24) Ubiquinol

25) Cyt a, Cyt a_3 , 2 Cu centres

26) F

27) Complex III and IV

28) ETS



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SCAN AND DONATE US SO THAT WE
CAN CREATE MORE SUCH QUALITY
CONTENT FOR YOU!

JUST ₹10-20 WILL BE APPRECIABLE! :)

When you attended the Whole lecture
and get disconnected at the time
of attendance

